

Claims 35-48 remain pending in this application.  
Claims 35 and 46-48 are independent claims.

In the Office Action, Claims 35-48 were rejected under 35 U.S.C. § 103(a) as being obvious from European Patent Specification 0 421 712 B1 (Ojima et al.).

Independent Claim 35 is directed to an image forming apparatus comprising an image forming member adapted to form an image, and a pulse-width modulation means for generating a pulse-width modulation signal in accordance with an image signal. The pulse-width modulation means generates the pulse-width modulation signal by counting pulses of a first clock signal in accordance with the image signal, and the first clock signal is generated by reading data from a storage means which stores output pattern data of the first clock signal. The reading of data from the storage means is performed by outputting data corresponding to the pattern data from a plurality of flip-flops connected in series, and the flip-flops latch the pattern data of the first clock signal.

Since a clock signal for pulse-width modulation is produced by using the pattern data stored in the plurality of series-connected flip-flops, the produced clock signal has

highly accurate rising/falling characteristics, and an image with improved tonality representation can be obtained.

Independent Claims 46-48 are electron beam apparatus, modulation circuit, and method claims, respectively, which each recite features that correspond in many respects to those of independent Claim 35 discussed above.

Ojima et al. refers to inputting a master clock CLK having a frequency which is the same as that of an input signal VDO, and generating switching clocks SCLK1 and SCLK2 having periods that are  $\frac{1}{2}$  of the period of the master clock CLK. Up/down counters 8 and 9 receive the switching clocks SCLK1 and SCLK2, respectively. The counters 8 and 9 are counted up or down in synchronization with the switching clocks SCLK1 and SCLK2, respectively, and outputs of the counters 8 and 9 are latched and then delivered to comparators 4 and 5, respectively. Input image data VDO is compared by the comparators 4 and 5, and a pulse-width modulated signal OPD for the input image data is produced and outputted by a changing circuit 15.

Applicant respectfully submits that, while Ojima et al. may refer to the foregoing features, nothing in that reference would teach or suggest generating a pulse-width

modulation signal by counting pulses of a first clock signal in accordance with an image signal, *wherein the first clock signal is generated by outputting data corresponding to pattern data from a plurality of flip-flops connected in series, and the flip-flops latch the pattern data of the first clock signal*, as recited in Claims 35 and 46-48.

The Office Action concedes that Ojima et al. does not teach or suggest "a plurality of flip-flops latching the pattern data as claimed [in Claims 35 and 46-48]", but then alleges that "it would have been obvious to one of ordinary skill in the art to utilize a plurality of flip-flops connected in series as to latch the pattern data of the first clock signal . . . ." Applicant respectfully disagrees with this assertion for the following reasons.

Ojima et al. refers to a need for providing a highly toned image, but Applicant submits that the document does not teach or suggest anything that would relate to a need to produce both a clock signal having characteristics with a high degree of accuracy and an image with improved tonality by employing pattern data stored in a plurality of series-connected flip-flops, in order to produce a pulse-width modulation signal by counting clock signals. As such, there would have been no reason why one skilled in the art,

who was faced with the same problem confronted by Applicant at the time of Applicant's invention, would have even consulted Ojima et al., let alone been motivated to modify that reference in the manner proposed in the Office Action. Applicant believes that the Examiner's suggestion to modify Ojima et al. is impermissible hindsight reasoning, since it proposes to modify the reference to achieve a result (i.e., a plurality of series-connected flip-flops) gleaned solely from Applicant's own disclosure, without any teaching, suggestion, or motivation to do so in the prior art.

Moreover, at col. 4, lines 52-54, Ojima et al. explicitly describes a concern to provide a simply constructed image forming apparatus. This appears to teach away from replacing the single flip-flop 17 shown in Fig. 3 of Ojima et al. with a *plurality of series-connected flip-flops*, as proposed in the Office Action.

Furthermore, even assuming *arguendo* that one skilled in the art would have consulted Ojima et al., it would not have been clear to such a person how to modify the changeover circuit 15 of Fig. 3 of Ojima et al. and the various other components of the overall circuit shown in Fig. 1 of that reference, to replace the single flip-flop 17 with a plurality of series-connected flip-flops for outputting

stored data and latching pattern data of a clock signal, as proposed in the Office Action, especially since the circuit 15 operates based on received signals D1, D2, SCLK1, and SCLK2, and the flip-flop 17 operates based on the received signals SCLK1, and SCLK2, whereas the plurality of series-connected flip-flops recited in Claims 35 and 46-48 output data corresponding to pattern data and latch the pattern data only to a first clock signal.

For all of the foregoing reasons, Applicant respectfully submits that it would not have been obvious to one skilled in the art at the time of Applicant's invention to modify Ojima et al. as proposed in the Office Action, in an attempt to attain Applicant's invention as defined in Claims 35 and 46-48. Accordingly, Claims 35 and 46-48 are each deemed clearly patentable over Ojima et al.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

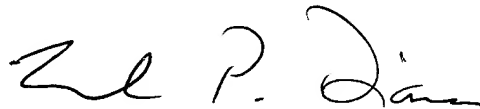
The other claims in this application are each dependent from independent Claim 38, discussed above, and are therefore believed patentable for the same reasons as is

Claim 38. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address address listed below.

Respectfully submitted,



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